

Title (en)

Lithographic marker structure compliant with microelectronic device processing

Title (de)

Zur Herstellung eines mikroelektronischen Elements geeignete Struktur einer lithographischen Marke

Title (fr)

Structure de marque lithographique adaptée à la fabrication de dispositifs micro-électroniques

Publication

**EP 1477860 A1 20041117 (EN)**

Application

**EP 03076422 A 20030512**

Priority

EP 03076422 A 20030512

Abstract (en)

A marker structure on a substrate for optical alignment of the substrate includes a plurality of first structural elements and a plurality of second structural elements. The first and the second structural elements are arranged in a repetitive ordering of one first structural element located adjacent to one second structural element, with a periodicity in an ordering direction of the repetitive ordering. The first structural element has a first width in the ordering direction, and the second structural element has a second width in the ordering direction. Both structural elements have a length direction extending perpendicular to the ordering direction. <??>The optical alignment is capable of: providing a light beam directed on the marker, receiving a diffracted light pattern, diffracted by the marker, on a sensor for measurement of the pattern, determining alignment information from the measurement which relates to a position of the substrate relative to the sensor. <??>The marker structure is manufactured by a lithographic process using a mask with a geometrical pattern for generating the marker structure. <??>The first structural element has a first reflecting surface on a first level and the second element has a second opaque reflecting surface on a second level, below the first level of the first reflecting surface. <??>The difference of the first and second level determines a phase depth condition for the diffracted light pattern. <??>In the second opaque reflecting surface a recessed area is present to modify the phase condition. <IMAGE>

IPC 1-7

**G03F 9/00**

IPC 8 full level

**G03F 7/20** (2006.01); **G03F 9/00** (2006.01)

CPC (source: EP)

**G03F 7/70616** (2013.01); **G03F 7/70625** (2013.01); **G03F 7/70633** (2013.01); **G03F 9/7046** (2013.01); **G03F 9/7076** (2013.01); **G03F 9/7084** (2013.01); **G03F 9/7088** (2013.01); **G03F 9/7092** (2013.01)

Citation (search report)

- [XA] US 6420791 B1 20020716 - HUANG CHIEN-CHAO [TW], et al
- [A] US 2002158193 A1 20021031 - SEZGINER ABDURRAHMAN [US], et al

Cited by

US8319967B2; CN109901359A; EP3203322A1; CN107037699A; US10322467B2; WO2010025793A1; WO2009072881A1; US9229338B2; US9255892B2; US9773739B2

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)

**EP 1477860 A1 20041117**

DOCDB simple family (application)

**EP 03076422 A 20030512**